

CLAIM OR CLAIMS

We claim:

1. A method for making a multisheet sandwich panel having a superplastically formed core of metal sheets, adhesively bonded to outer face sheets, being formable superplastically in a superplastic forming temperature range, comprising the steps of:
 - (a) assembling a pack of a plurality of sheets of sheet metal having a high temperature adhesive affixed to one or more sheet at selected locations corresponding to the location of adhesive bonds in the finished part;
 - (b) loading the pack to a press;
 - (c) heating the pack to the superplastic forming range without destroying the adhesive;
 - (d) superplastically forming the pack to define a selected core geometry for the finished part and to define the adhesive bonds;
 - (e) flowing the adhesive concurrently with forming the pack to produce adhesive bonds in desired locations;
 - (f) cooling the formed pack below the superplastic range to a temperature where the adhesive sets to complete the finished part; and
 - (g) removing the cooled, finished part from the press.
2. The product obtained by the SPF/AB method of claim 1.
3. The product of claim 2 wherein the sheets are aluminum alloy and the adhesive is a polyimide.
4. A combined cycle method for superplastically forming and adhesively bonding a multisheet part, especially one having aluminum face sheets and core sheets, comprising the step of:

adhesively bonding a core pack with outer face sheets in the part with superplastically forming the core pack.

5. An SPF/AB part made by the method of claim 4.

6. The process of claim 1 wherein the metal sheets are A1 2004, A1 8090, or A1 1570 and the adhesive is a polyimide.